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[摘要]

全球性面臨能源危機，空調系統之節約能源也極度被重視，空調工程完工時的功能驗證（commissioning）過去常缺少的一環；而功能驗證中風管與水管系統之測試、調整與平衡(Testing, Adjusting and Balancing)(以下簡稱TAB即省觀念下被忽略。

本研究主要目的在於探討空調水系統TAB技術原理及成效；參照有關文獻資料及相關產品型錄，整理出水平衡技術業流程。藉由兩個典型空調水路系統個案實測與分析作為研究驗證。另就水量變化對空調水系統性能理論探討，並使用選機軟體或計算程式作系統特性分析，並由典型空調水系統作為案例分析。

本研究獲得以下重要成果結論：證實空調水系統TAB工作之執行會使空調水系統各設備發揮最佳效能進而達到節約之設備及電力工程成本、溫濕度控制穩定、快速達溫濕設定值、設計參數修正之目的。善用設備選機軟體不只可為設備維護輔助之工具。設計階段必須考量空調水系統TAB工作所需之管閥件及相關需求，以利TAB之執行。

[英文摘要]

Due to the global energy crisis, energy-saving for air conditioning system has gained attention. Commissioning a neglected in the past, but it is indeed important to effective operation and energy-saving. The Testing, Adjusting, time- and labor-consuming, thus, it is often omitted to reduce cost.

The purpose of this study is to discuss the principles and effects of TAB for air conditioning system. Based on re-generalized the development of water balance technology and found the latest technology to establish a set of a used to typical waterway systems for analysis and verification. The discussions also included how the change in system, the relationship between system features and TAB, and how to use selection software or program for an air conditioning water systems.

The conclusions are as follow: TAB for air conditioning water system could optimize the efficiency of the system, system life, prevent excessive electric power cost from additional equipment, stable control of temperature and h modification of design parameters. Proper use of selection software could be reference to staged design and TA The design must take into consideration of the pipes, valves, and other requirements of TAB for air conditioning

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